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NOTE ON THE UNILATERAL SURFACE OF MOEBIUS*

BY

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In order to construct an algebraic surface containing as a part the unilateral paper-strip of MOEBIUS,† let a straight line L move in space along a circle C , perpendicular to the tangents of C and in such a way that, when the point of intersection Q of L with C has described the full circle, the initial position of L makes with its final position an angle of 180° . The condition that L meets C at right angles is equivalent to the condition that L meets a straight line A passing through the center M of the circle and perpendicular to its plane; let P be the movable point of intersection of L and A . If now we add the further condition that the range P on A be projective to the range Q on C (e. g., by taking the angle QPM always half the angle of the arc described by Q on C) then L describes, according to a general theorem,‡ a ruled surface of the third order.

Conversely: take any ruled surface R of the third order, particular cases excepted, pass a plane section through one of the generators L which will meet R besides L in a conic section K , and describe a curve T on R the points of which have along the generators a sufficiently small constant distance from K ; then T will cut out of R a unilateral Moebius surface.

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† MOEBIUS: *Ueber die Bestimmung des Inhalts eines Polyeders*, § 11. (Gesammelte Werke, vol. II, p. 484-485.)

‡ REYE: *Geometrie der Lage*, ed. 3, vol. I, p. 209, no. 101.